



Draft Engineering Design Report – Upland Areas of Jeld Wen Site, Creosote/Fuel Oil Area

Jeld Wen Site

Prepared by:

JELD-WEN, Inc.

2645 Silver Crescent Dr.
Charlotte, North Carolina 28273

And

SLR International Corporation

6915 S Macadam Blvd; Suite 300, Portland, Oregon 97219

Prepared for:

Washington State Department of Ecology

P.O Box 47600
Olympia, Washington 98504

SLR Project No.: 108.020778.00001

July 21, 2025

Table of Contents

1.0 Introduction	1
2.0 Conceptual Site Model	1
2.1 Selected Remedy	3
2.2 Cleanup Standards.....	5
2.2.1 Upland soil	5
2.2.2 Groundwater	5
2.2.3 Summary of Cleanup Standards.....	5
3.0 Basis of Design	6
4.0 Implementation of the Cleanup Action	7
4.1 Roles and Responsibilities	7
4.2 Site Preparation.....	7
4.3 Utility Protection Plan	8
4.4 Construction Controls	8
4.4.1 Temporary Site Controls.....	8
4.4.2 Engineering Controls.....	9
4.4.3 Institutional Controls during Construction	9
4.5 Soil Excavation.....	10
4.5.1 Dewatering	10
4.6 Soil Handling, Transport, and Disposal.....	11
4.7 Soil Backfill and Surface Restoration.....	11
4.8 Air Sparge and Soil Vapor Extraction System.....	12
4.9 Post-Construction Controls.....	13
4.9.1 Institutional Controls	13
4.9.2 Engineering Controls.....	13
4.10 Required Permits.....	13
4.11 Schedule	14
4.12 Compliance Monitoring.....	14
4.12.1 Protection Monitoring.....	15
4.12.2 Performance Monitoring	15
4.12.3 Confirmation Monitoring.....	15
4.13 Cleanup Action Completion Report	16
5.0 Closure.....	16



6.0 Limitations17

Figures

Figure 1	Site Plan
Figure 2	Hot Spot Soil Removal and BIO System (from CAP)
Figure 3	Utility Plan
Figure 4	Soil Excavation Plan
Figure 5	SVE System Plan
Figure 6	AS System Plan
Figure 7	Horizontal SVE Section Design
Figure 8	Air Sparge Well Design
Figure 9	Confirmational Monitoring Plan

Appendices

Appendix A	Cross Sections
Appendix B	Property Ownership Information



1.0 Introduction

This Draft Engineering Design Report (EDR) describes the approach and criteria of the design selected for performing cleanup activities in the upland Creosote/Fuel Oil Area of the former E.A. Nord, Inc. door facility (commonly referred to as the Former Nord Door Facility) (through its successor-in-interest, JELD-WEN, Inc. [JELD-WEN]), located at 300 West Marine View Drive, Everett, Washington, 98201 (Ecology Cleanup Site ID: 4402; Jeld Wen Site) (Site). Cleanup of the Site includes both upland and sediment remediation. Separate EDRs are being developed to describe the proposed remediation for contamination in the intertidal aquatic areas (Marine EDR) and for contamination in the upland Woodlife Area. This EDR presents the proposed remedy to address contaminated soil and groundwater in the Creosote/Fuel Oil Area at the Site (Figure 1).

The required cleanup actions at the Site are set forth in the JELD-WEN Final Cleanup Action Plan¹, and in accordance with the requirements of Agreed Order (AO) Number DE 5095 and subsequent First Amendment and Second Amendment to the AO between JELD-WEN and the Washington State Department of Ecology (Ecology). This EDR has been prepared to meet the requirements of the Model Toxics Control Act (MTCA²).

This EDR provides a summary of background information used to characterize and define the extent of contamination at the Site and describes physical and operational conditions based on available information. This EDR also describes the proposed remedial actions intended to address soil and groundwater contamination at the Creosote/Fuel Oil Area, and the design elements and criteria that are the basis for the Pre-Remedial Design Investigation (PRDI). A narrative discussion of performance standards and how the Creosote/Fuel Oil Area remedial design will meet professional engineering standards of practice and regulatory requirements is provided herein.

2.0 Conceptual Site Model

Characterization data and reported history of use indicate that the primary source of contaminants of concern (COCs) in the Creosote/Fuel Oil Area is the former pole treating operation (National Pole) and the 1950's oil-fired boiler formerly located on the eastern portion of the Site, adjacent to the current placement of West Marine View Drive.

Groundwater has been measured as shallow as approximately 2 feet below ground surface (bgs) and is likely influenced by surface water infiltration, site features, stormwater conveyance lines, and utilities infrastructure. Boring logs do not identify a continuous aquitard or aquiclude for the Site within the extent of site investigations (up to 60 feet bgs); however, strata of finer-grained soils (i.e., silty sands) have been observed in some soil borings. Shallow groundwater samples at the Creosote/Fuel Oil Area have shown indications of brackish groundwater conditions. The

¹ Washington Department of Ecology (Ecology). Final Cleanup Action Plan (CAP), Jeld Wen Site. August 2023

² Model Toxics Control Act (MTCA). Washington Administrative Code (WAC) Chapter 173-340, amended 2019.



tidal influence assessment conducted in 2019³ within the Creosote/Fuel Oil Area indicated that changes in groundwater elevation associated with tidal swings were minimal.

Historical operations by National Pole included treating timber poles with a creosote wood preservative. Creosote is derived from coal tar and consists of a mixture of aromatic hydrocarbons, anthracene, naphthalene, and phenanthrene derivatives (i.e., heavy chain hydrocarbons). Likely historical releases of COCs associated with pole treating operations include spills and incidental releases of creosote to the ground surface by way of transporting and drying of treated poles. The migration of creosote to shallow groundwater, and subsequently to deep groundwater, is observed from the assessment work completed. Releases of fuel oil petroleum hydrocarbons in the Creosote/Fuel Oil Area are likely associated with the historical fuel storage tanks near the former fuel oil boiler. Grading and filling activities associated with construction of West Marine View Drive likely resulted in burial of surficial contamination east of the primary operations areas.

Migration of vapor from the volatilization of volatile compounds (i.e., naphthalene) has been assessed from within the footprint of the existing main manufacturing building. Evaluation of the vapor intrusion (VI) pathway measured exceedances of MTCA sub-slab soil gas criteria; however, the main manufacturing building has remained unoccupied since confirmation of sub-slab soil gas impacts above the criteria.

Groundwater sampling data has demonstrated that creosote impacts to soil and groundwater are localized around the former operation areas at the Creosote/Fuel Oil Area and are likely beneath West Marine View Drive. As presented in the CAP, groundwater migration and/or seepage to surface water does not appear to be a significant mechanism for the transport of Creosote/Fuel Oil Area impacts, as indicated by data gathered from permanent groundwater monitoring wells on-Site and groundwater seeps throughout the Site's shoreline.

The Property is zoned as industrial use, and it is likely that industrial activities will continue in the on-property portion of the Creosote/Fuel Oil Area for the foreseeable future. The off-property portion of the Creosote/Fuel Oil Area consists of a public roadway and railroad-owned property, which will also remain at their current use for the foreseeable future. Potentially complete exposure pathways for soil in the Creosote/Fuel Oil Area include direct exposure by construction workers (e.g. dermal, incidental ingestion) associated with future on-site work or property development work.

The presence of shallow groundwater and the shallow depth of existing subsurface utilities adjacent to the Creosote/Fuel Oil Area indicate that potential future construction worker exposure to soil is limited to less than approximately 5 feet from the current ground surface⁴. No likely scenario exists for human or terrestrial ecological exposure to soil contamination greater than 6 feet bgs (current ground surface) in the Creosote/Fuel Oil Area. Engineering controls (EC) and institutional controls (IC) will be used as described in the CAP. Therefore, the exposure pathway for soil deeper than 5 feet below ground surface is considered incomplete.

³ SLR International Corp. (SLR). Summary Report – 2019 Data Gap Assessment. Former E.A. Nord Facility. July 9, 2019.

⁴ SLR. Technical Memorandum: Supplemental Disproportionate Cost Analysis. June 20, 2025.



Concentrations of benzene and naphthalene in soil gas samples measured during Remedial Investigation (RI)⁵ activities exceeded applicable VI screening criteria under the existing main manufacturing building floor slabs; therefore, the indoor air exposure pathway for future Site workers on-property is considered complete. Exposure to soil gas outside of existing buildings (i.e., volatilization to outdoor air) is unlikely due to immediate dilution by ambient air. The volatilization of VI COCs in the deep zone groundwater that are untreated may potentially re-contaminate the shallow groundwater, however, paired deep and shallow groundwater wells from the PRDI were both submitted for laboratory analysis of naphthalene and there is not a significant correlation between the paired wells (i.e., higher concentrations of volatile constituents measured in deep groundwater were not necessarily co-located with higher concentrations of the same volatile constituents in shallow zone groundwater).

Groundwater is not considered a current or likely future source of drinking water⁶. Groundwater impacts are currently contained under existing surface caps, buildings, and roadways, further limiting potential exposure. Contaminants in groundwater within the shallow or deep zone of the Creosote/Fuel Oil Area have not been shown to migrate to adjacent surface water or sediments despite the duration between the initial release(s) and the site investigation activities (over 80 years in the case of National Pole's operations). Annual groundwater monitoring has been performed for the interim period between completion of the RI/FS and implementation of the cleanup action⁷.

2.1 Selected Remedy

Affected media in the Creosote/Fuel Oil Area include soil, groundwater, and soil gas. FS⁸ alternatives for the Creosote/Fuel Oil Area were developed by considering distinct areas that require cleanup action: on-property ("property" defined as the legal boundaries of the former E.A. Nord facility, as opposed to the "Site" which includes the extent of contamination caused by the release of hazardous substances per MTCA) vadose zone; on-property shallow groundwater (to 15 feet bgs); on-property deep groundwater (>15 feet bgs); off-property vadose zone; off-property shallow groundwater (to 15 feet bgs); and off-property deep groundwater (>15 feet bgs). Ecology selected Alternative 7 as the preferred cleanup alternative which included excavation and offsite disposal of Hot Spot contaminated soil on-property; operation of an enhanced BIO treatment system for deeper on-site groundwater and shallow and deeper off-property groundwater; Monitored Natural Attenuation (MNA); and IC and EC (Figure 2).

Ecology issued a letter in February 2024⁹ that refines the scope of the BIO treatment system to consist of solely Air Sparging (AS) and Soil Vapor Extraction (SVE) to target the primary risk mechanism of volatilization of shallow groundwater to on-property workers via VI. The enhanced

⁵ SLR / Anchor QEA, LLC (Anchor). Final Remedial Investigation/Feasibility Study. Jeld Wen / Former Nord Door Facility. December 2021.

⁶ WAC 173-340-720(2)(d)

⁷ SLR. Groundwater Monitoring Sampling and Analysis Plan. Jeld Wen / Former Nord Door Facility. Revised July 2022

⁸ SLR / Anchor, RI/FS Report.

⁹ Washington Dept of Ecology (Ecology) Letter to JELD-WEN, Inc. RE: Clarification on Creosote Area Cleanup Plans at the Jeld Wen Site. February 23, 2024.



component of the BIO system described in the FS (Nitrate-Nutrient-Surfactant [NNS] injections and recirculation) is to be considered the primary Contingent Remedial Action (CRA) – pending completion of a Focused Feasibility Study (FFS), if necessary. As stated in the BIO deferral letter, “this change is not considered a significant change to the CAP, but rather primarily results in a modification of the sequencing of the cleanup components specified within the CAP.”

The Hot Spot soil excavation was designed to address high concentration soil impacts at depths where direct exposure is most likely (via future construction worker scenario) and while also reducing potential exposures from VI due to volatilization of shallow impacts (to future building/Site occupants) via source removal. The FS assumed that operation of the AS/SVE system in the shallow zone groundwater will reduce potential exposures through VI, and operation of the BIO treatment system (AS) in deeper groundwater will reduce the potential migration of lighter end hydrocarbon contamination associated with the dense non-aqueous phase liquid (DNAPL) that could migrate vertically to the shallow groundwater zone, although that pathway has not been supported by the paired well sampling described above.

Following a review of the field observations from the PRDI that showed a change in the conceptual understanding of hot spot soil in the Creosote/Fuel Oil Area and discussions with Ecology, JELD-WEN prepared a Supplemental Disproportionate Cost Analysis (DCA) for the Creosote/Fuel Oil Area alternative scope. The PRDI showed a discontinuous area of NAPL impacted soil, primarily below the groundwater table. This change in the concept of Hot Spot soil coupled with concerns about sea level rise, King Tides and surface flooding, and the limited vadose zone led to the development of additional alternatives that the supplemental DCA considered:

- Alternative #7A: Hot Spot Soil Removal to 9' bgs, backfill and capping at existing ground surface elevation, AS/SVE, EC and IC (Alternative 7 as presented in the CAP).
- Alternative #7B: Hot Spot Soil Removal to 6' bgs, backfill and capping at existing ground surface elevation, AS/SVE, EC and IC.
- Alternative #7C: Hot Spot Soil Removal to 4 feet bgs from current ground elevation, backfill and capping up to 2 feet above existing ground surface elevation over larger exposure pathway area, AS/SVE, EC and IC.

Ecology issued a letter in June 2025¹⁰ that supports the selection of Alternative 7C noting that “the change is not considered a significant change to the CAP, but rather a modification of a conceptual design element of the selected remedial alternative.”

IC may include restrictions to on-site soil disturbance, restrictions to the installation of drinking water wells, and notices of impacted soil. A soil management plan would be developed to control potential exposure risks posed by direct exposure to residual subsurface contamination (i.e., in the off-property areas under public roadway and under railroad tracks where sufficient remedial action is not feasible).

¹⁰ Ecology Letter to JELD-WEN, Inc. RE: Submitted Disproportionate Cost Analysis for Creosote Area Excavation Depth at the Jeld Wen Site. June 25, 2025.



2.2 Cleanup Standards

Soil cleanup standards for the Site were presented in the CAP. The COCs, Cleanup Levels (CULs), Remediation Levels (RELs), and Point of Compliance (POC) depths presented in the RI/FS and CAP are summarized in Table 1. The POC depth refers to the depth where COCs in soil must comply with CULs and RELs.

2.2.1 Upland soil

Selected CULs for Indicator Hazardous Substances (IHS) in soil include the following:

- 0.19 milligram per kilogram (mg/kg) for cPAHs Toxic Equivalency (TEQ) (based on Method B direct contact)

2.2.2 Groundwater

Selected CULs for IHS in groundwater include the following:

- 8.9 micrograms per liter (µg/L) for naphthalene (based on groundwater protective of vapor intrusion) in shallow on-property groundwater in the Creosote/Fuel Oil Area
- 0.015 µg/L for cPAHs TEQ (based on laboratory practical quantitation limit [PQL]) in shallow on-property groundwater for protection of surface water in the Creosote/Fuel Oil Area

2.2.3 Summary of Cleanup Standards

SOIL	ON PROPERTY	OFF PROPERTY
Remedial Action:	Hot Spot Soil Removal, IC, EC	IC, EC
CUL	0.19 mg/kg for cPAHs TEQ (based on Method B direct contact)	
REL	1) Remove visible NAPL from excavation footprint 2) PID readings of 100 ppmv from excavated soil (limited to where additional excavation is possible)*	

* As presented in the PRDI Data Report¹¹, PID measurements were lower than expected and the use of post-excavation field screening with a PID as an REL does not appear to be an effective strategy.

GROUNDWATER	ON PROPERTY	OFF PROPERTY
Remedial Action:	Hot Spot Soil Removal, Shallow AS/SVE, MNA, IC, EC	Shallow AS/SVE at property boundary, IC, EC

¹¹ SLR. Final PRDI Data Report – Upland Areas of Jeld Wen Site. May 30, 2025.



CUL	1) 8.9 µg/L for naphthalene (based on groundwater protective of vapor intrusion)* 2) 0.015 µg/L for cPAHs TEQ (based on laboratory PQL)#
REL	1) 500 µg/L for naphthalene in shallow groundwater (to trigger MNA) 2) Monitoring of mobile NAPL& in deep groundwater (for protection of shallow groundwater)

* Naphthalene criteria to be used for AS/SVE area.

cPAH criteria to be used for shallow sentry well confirmational monitoring.

& Mobile NAPL is defined as discovery of NAPL in new sentry wells or in existing wells that previously had not had product present.

3.0 Basis of Design

Ecology was presented with multiple alternatives for the remedial design of the Upland Areas and the marine sediments. The Ecology-selected remedy for the Creosote/Fuel Oil Area includes targeted removal of shallow NAPL-impacted soils and placement of fill material, bioremediation via AS/SVE, MNA, EC, and IC. This remedy protects human health and the environment, employs reliable and proven technologies, and can be completed quickly. The selected remedy as presented in the CAP has been modified in agreement with Ecology for two components: 1) the BIO treatment system¹² was modified to consist of AS/SVE and no longer utilize NNS injections and recirculation; and, 2) the soil removal depth¹³ of 9 feet bgs was modified to 4 feet bgs with stipulation that 2 feet of clean fill would be placed atop a larger area at the Creosote/Fuel Oil Area.

The soil excavation was designed to address high concentration soil impacts at depths where direct contact exposure is most likely via future construction worker scenario for uppermost 6 feet of post-construction grade and will reduce potential exposures from VI due to volatilization of shallow soil impacts to future building/Site occupants via source removal. Operation of the AS/SVE in the shallow zone groundwater will additionally reduce potential exposures through VI due to volatilization of shallow groundwater impacts. As shown in the PRDI Data Report and presented in Section 2 of this EDR, there is not a strong correlation between deep groundwater impact's effect on the shallow groundwater zone; therefore, the AS/SVE system has been primarily designed to address the most complete risk pathway, which is volatilization of shallow groundwater zone impacts to indoor air.

¹² Ecology Letter to JELD-WEN Re. Clarification on Creosote Area Cleanup Plans at the Jeld Wen Site. February 23, 2024.

¹³ Ecology Letter to JELD-WEN Re. Submitted Disproportionate Cost Analysis for Creosote Area Excavation Depth. June 25, 2025.



4.0 Implementation of the Cleanup Action

4.1 Roles and Responsibilities

The cleanup action implementation team includes representatives from JELD-WEN, Ecology, SLR, and other to-be-determined organizations, contractors, and service providers listed below. This information will be updated as the project work progresses. See Appendix B for parcel ownership information.

- Property Owner(s): W&W Everett Investments, LLC (central and eastern portion of peninsula); HM Pacific Northwest 1 LLC (Heidelberg Materials asphalt plant on west end of peninsula); City of Everett (portions of West Marine View Drive); Port of Everett (portions of West Marine View Drive)
- JELD-WEN Project Manager: Tom Graham
- Project Consultant: SLR Consulting, R Scott Miller, P.E.
- Ecology Site Manager Contact: Frank Winslow, LHG
- Construction Contractor: TBD

4.2 Site Preparation

This draft EDR assumes that all or the eastern portion of the main manufacturing building has been demolished (Figure 4). Building demolition and associated site controls following building demolition are not included in this draft EDR. The schedule, construction contractor mobilization, and pre-mobilization activities assume building demolition or partial building demolition have been completed before the end of 2025.

Pre-mobilization coordination activities will include, but are not limited to:

- Ecology's approval of the 90% complete Construction Plans and Specifications (CPS).
- Obtaining necessary permits or obtaining concurrence from Ecology that substantial completion of permit requirements has been met (see Section 4.12).
- Communicating the project schedule with the Project Team and stakeholders.
- Notifying Ecology about the anticipated field schedule at least five working days prior to the scheduled start of the cleanup activities.
- Coordination with the property owners regarding utilities services for the start-up and operation of the AS/SVE systems.
- Performing a utility locate prior to excavation activity. Coordination with utility companies and property owners regarding interruption or temporary relocation of utilities within the work area (see Section 4.3).
- Communicating with the laboratory about the laboratory requirements of the Sampling and Analysis Plan (SAP)/Quality Assurance Project Plan (QAPP).



- Communicating with the off-site waste disposal facility regarding the acceptance of solid waste generated at the Site.
- Coordinating with the appropriate wastewater facility or municipality regarding the acceptance of any construction stormwater or groundwater generated at the Site as a result of the construction activities.

4.3 Utility Protection Plan

The known underground and overhead utilities at and near the Creosote/Fuel Oil Area are shown on Figure 3 and include:

- Underground water service lines
- Underground sanitary sewer and stormwater sewer adjacent to the property in West Marine View Drive
- Sanitary sewer connections (former) to a portion of the main manufacturing building

All lines will be carefully marked by a professional locating service, including an assessment of depth bgs. Except for removal of surface pavement, all excavation work within 12 inches of the marked, active utility locations will be via hand-excavation. Active utility lines located through Creosote/Fuel Oil Area excavation areas may be re-routed on the surface and around the perimeter of the excavation area using acceptable materials (i.e., water hoses or piping). It is anticipated that no utilities will require prolonged interruption.

4.4 Construction Controls

4.4.1 Temporary Site Controls

Temporary facilities will be controlled by the contractor with respect to subcontractors, site access, signage/traffic controls, temporary facilities, safety, noise, dust, and security. The Site will be closed to the public; however, the owner's operations at the Site (including that of their tenants) is expected to continue throughout construction.

The contractor will employ Best Management Practices (BMPs) to prevent pollution of air (dust) and water BMPs will be employed in all work areas, equipment and material storage areas, stockpiles, and haul areas. Areas of the Site will be designated as clean support areas (e.g., imported material staging areas) or contaminated (e.g., excavated material stockpile areas and haul routes to and from contaminated stockpiles). Equipment will be decontaminated before moving from contaminated areas to clean support areas to prevent cross contamination. BMPs such as housekeeping along contaminated material haul routes and access points (i.e., sweeping) will further prevent cross contamination.



4.4.2 Engineering Controls

4.4.2.1 Dust Control

To manage dust during excavation and construction activities, practices in accordance with Ecology guidance¹⁴ will be implemented at the Site. At designated Site entrances, track out control mats will be placed to minimize contaminated sediment migrating offsite from haul trucks and construction equipment. All haul trucks will cover their loads when traveling offsite. Haul trucks will be visually inspected by site personnel to ensure compliance with dust control requirements.

4.4.2.2 Stormwater Discharge

The proposed excavation consists of an area presently within the footprint of the former main manufacturing building. As noted above, this draft EDR assumes that all or a portion of the main manufacturing building has been demolished (Figure 4). Post-demolition stormwater that was formally controlled by roof drains needs to be addressed by the property owner, regardless of whether the remedial action construction was to occur.

It is assumed that a Construction Stormwater General Permit (CSGP) will be obtained prior to construction, including an Erosion Sediment Control Plan (ESCP) detailing BMPs to be employed to control stormwater. The ESCP will be implemented by the contractor and under the oversight of a Certified Erosion and Sediment Control Lead (CESCL). BMPs include straw waddles surrounding drainage pathways, installation of fabric filters in catch basins, inspections and monitoring. Stormwater will be managed according to permit conditions.

4.4.3 Institutional Controls during Construction

IC are implemented during the construction phase to minimize risk through modifying the work environment.

4.4.3.1 Health and Safety Plan

A Site-specific Health and Safety Plan (HASP) will be developed to comply with Hazardous Waste Operations and Emergency Response (HAZWOPER¹⁵) requirements, and to promote safety pursuant to WAC 173-340-400 and WAC 173-340-810. On each morning of the day that field activities occur, a 'tailgate' safety meeting will be held by site personnel to discuss hazards and concerns before starting work. A copy of the HASP will be signed by site personnel and kept onsite during work hours.

4.4.3.2 Inadvertent Discovery Plan

An Inadvertent Discovery Plan (IDP) was prepared in accordance with applicable state and federal laws and was maintained on site during ground disturbing activities for the PRDI activities. At the request of Ecology¹⁶, upon consultation with Department of Archaeology & Historic

¹⁴ Ecology. Best Management Practices Standards and Specifications for Dust Control. 2012.

¹⁵ 29 CFR 1910.120

¹⁶ Letter to Frank Winslow, Ecology from Treasure Mitchell, Ecology. RE: Model Toxics Control Act Consultation Requirement – WAC 173-340-815. May 7, 2024



Preservation (DAHP), a licensed archaeologist performed monitoring during ground disturbance activities. No evidence of archaeological artifacts was observed during any upland PRDI activities. The IDP will be available and adhered to during remedy construction activities; however, there will be no active archaeological monitoring.

4.5 Soil Excavation

Soil excavation activities will be performed in accordance with standard industry practices and professional experience. Soil removal is planned from ground surface to a depth of up to 4 feet bgs (see Figure 4); however, vertical removal will be guided by field observations and health & safety concerns. The current estimated volume is 300 cubic yards to be excavated.

To the extent possible the excavations will be cut vertically to minimize the overall size of the excavation, and significant sloping or benching is not anticipated to be required to stabilize the excavation. As the objective of the soil removal is to protect the potential worker exposure via direct contact to a depth of 6 feet bgs (the POC), soil removal will not occur beyond 4 feet bgs of original grade (taking into account the proposed 2-foot cap which will set final grade to 6 feet bgs).

Removal of NAPL-impacted soils is the REL for the Creosote/Fuel Oil Area remedy. This objective will be monitored using the NAPL Classification Guidance presented in the PRDI Data Report. Per the approved Supplemental DCA, the term 'Hot Spot' soil has been defined as the PRDI sample locations which identified observations of NAPL as either 'Product Saturated Soil' or 'Some Product Saturated Soil (blebs)' per the classifications presented in the guidance. It is expected that clean overburden will be encountered and in absence of visual observations of NAPL, will be segregated and used as backfill material.

Impacted soils may be direct loaded to dump trucks for transport to the designated disposal facility or stockpiled in designated soil stockpile areas per construction stormwater permit requirements. The estimated limits of the excavation are based on the findings of the PRDI activities, and as shown on Figure 4. Confirmation soil sampling will not be utilized as the REL is based on visual observation of NAPL, in accordance with CUL requirements.

4.5.1 Dewatering

Groundwater is typically encountered at approximately 2 to 5 feet bgs in the Creosote/Fuel Oil Area. During soil excavation, dewatering is expected to be minimal, as the excavation will not extend below the water table unless during times of high seasonal fluctuation. However, fluctuations in water level can occur as a result of heavy equipment use or due to tidal changes. Dewatering will be performed as needed using hose and pump connections to extract the water from the excavation and store it in holding tank(s) pending offsite removal or discharge. Water from the excavation will be treated for solids and chemical concerns (i.e., bag filters and activated carbon) to achieve discharge limitations. The holding tanks will be sampled to ensure the water is in compliance with local water standards before being discharged to the municipal sanitary system or surface waters. If the water cannot be disposed of via permitted discharge to the sanitary system or surface discharge, it will be disposed of at an offsite facility permitted to receive such waste.



4.6 Soil Handling, Transport, and Disposal

Soil excavated from the Creosote/Fuel Oil Area cleanup footprint (Figure 4) will be transported to a commercial landfill that is permitted to receive the waste. The landfill selection is not defined in the draft EDR. The selected contractor may utilize barge, truck, and rail depending on their approach to the work and the selected landfill facility. Examples of permitted landfills that have historically managed contaminated soil include the Waste Management landfills in Wenatchee, Washington, and Arlington, Oregon, and the Allied Waste facility located in Roosevelt, Washington. Other landfills may be utilized for disposal management, provided that the contractor can demonstrate they are properly permitted.

The selected contractor will be responsible for transport and disposal of the contaminated soil and materials at the approved licensed disposal facility. The contractor will be required to meet the following specific requirements for transportation and disposal:

- The contractor will be required to identify its selected licensed disposal facility as part of its bid and provide certification from the disposal facility that they can, and are willing to, accept the project contaminated materials with consideration of its contaminant concentrations.
- The contractor will be responsible for the safe transport of all waste (e.g., contaminated soil, debris, dewatering fluids or residuals from the Creosote/Fuel Oil Area excavation) in accordance with all applicable regulations and guidelines. The contractor will prepare and sign all manifests and obtain all approvals for the transport of contaminated soil and debris. The contractor will be required to provide legible copies of all manifests, weigh bills, bill of lading and other records associated with soil, wastewater and other material handling, that is associated with off-site transport and disposal.
- The contractor will be responsible for the coordination, safe transport, and appropriate recycling of recyclable items (e.g., removed surface pavements) in accordance with all applicable regulations and guidelines for these materials.

4.7 Soil Backfill and Surface Restoration

Excavation backfilling and compaction will be completed in accordance with the recommendations of geotechnical engineers from standard industry practice and information derived from the PRDI activities. Imported clean, structural fill will be observed for the presence of NAPL, in accordance with the REL, prior to placement in the excavation. Upon completion of soil compaction in accordance with the geotechnical specifications, the area will be filled and subsequently paved to match the existing grade. In accordance with the modified alternative, the excavated area will be uplifted with 2 feet of clean material, including aggregate and asphalt (see cross sections in Appendix A).

The surface will be restored with an asphalt pavement cap to provide additional protection from direct contact and to allow functionality of the SVE component of the remedy. The soil compaction standards, and aggregate and asphalt specifications will be designed to meet requirements for the expected load(s) (i.e., industrial or commercial land use).



4.8 Air Sparge and Soil Vapor Extraction System

Design of the AS/SVE system is based upon the findings of the PRDI activities, particularly evaluation of the pilot testing data use to establish the design Radius of Influence (ROI) (See Figure 5 and Figure 6). The PRDI SVE pilot test utilized one 10-foot horizontal SVE section while the system under current design will consist of 7 horizontal SVE sections of varying screen lengths (Figure 5). The shallow AS pilot test utilized one 1-inch sparge well at an applied pressure of 1.0 pound per square inch (psi) while the system under current design consists of 15 sparge wells to provide coverage over the areas shown on Figure 6. Saw cuts of the existing surface pavement would be made for each of the SVE sections and the SVE sections would be installed below the existing surface pavement depth (Figure 7). A vapor barrier would be placed over the SVE section cut such that the SVE system induced vacuum would influence soil/soil vapors below the existing surface pavement. The proposed fill and new surface asphalt pavement would be placed over the existing surface pavement as described in Section 4.7 and Appendix A. Sections of SVE piping may be added to the proposed fill; “sandwiched” between the existing surface pavement and the propose new asphalt pavement. These sections of SVE piping placed in the clean fill over the existing surface pavement would be used to confirm that the SVE system is capturing volatile COCs and could provide a secondary SVE recovery zone if the SVE system is not providing adequate capture.

As noted previously, the deep zone groundwater impacts are stable and appear non-mobile since the impacts remain centered at the assumed release point of National Pole operations over 80 years prior. The paired well data collected and the extent of DNAPL compared the extent of naphthalene in the shallow groundwater generally shows that the deep zone groundwater impacts are not volatilizing/impacting the shallow groundwater zone; therefore, the primary objective of the AS/SVE system component of the remedy is to remediate and control the VI pathway associated with volatilization of shallow groundwater zone impacts. Not sparging the deeper zone will reduce the potential risk of mobilization of the DNAPL in the deep groundwater.

Construction of the AS/SVE system assumes demolition of at least the northeastern portion of the existing main manufacturing building, with the exception of the paved surface which will remain in-place, with the exception of the soil removal areas described above. For areas of the pad that remain intact and within the remediation target footprint, horizontal SVE sections will be installed immediately below (within 1-foot bgs) the existing paved surface (see design as Figure 7 and cross sections as Appendix A). This design is based upon the findings of the PRDI in which groundwater infiltration of the SVE section was observed during the pilot testing. The bottom of the pilot test SVE section was situated at approximately 3 feet bgs from current grade. AS wells will be installed through the existing surface pavement prior to placement of any fill material and raised to the proposed new surface grade and affixed with a well monument (see design as Figure 8).

Associated piping to manifold the SVE sections and AS wells to the primary system drive components (i.e. blower and compressor) will be placed atop the existing concrete slab in lieu of additional trenching. Preservation of as much of the existing pad in this area as possible will benefit the effectiveness and efficiency of the treatment system. The SVE discharge pipes and AS well heads will extend to the proposed new grade surface, inclusive of the 2-foot cap (see



cross section in Appendix A) and the area in its entirety will be backfilled and the surface restored as described above.

A locked control area will be constructed to house a noise-reducing enclosure for the blower(s) and compressor(s), a control panel (which will require electrical service), and activated carbon effluent treatment vessels for extracted vapors.

The location of the SVE/AS equipment area is not shown on the attached figures. Detail such as equipment location, electrical service connections, equipment sizing, etc. will be included with the project Plans and Specifications.

4.9 Post-Construction Controls

Post-construction controls will be developed and implemented in accordance with WAC 173-340-440 and Ecology's Toxic Cleanup Program Procedure 440A.

4.9.1 Institutional Controls

Institutional controls to be implemented in accordance with the CAP include the recording of a restrictive covenant on the property with the Snohomish County Assessor's Office. This covenant will include restrictions on soil digging and placement of drinking water wells on the property and will pertain to the entire peninsula. The Performing PLPs shall develop a soil management plan to control potential exposure risks posed by direct exposure to residual subsurface contamination and to protect the integrity of the remedy.

4.9.2 Engineering Controls

Engineering controls to be implemented in accordance with the CAP will include maintaining paved areas, or clean soil caps, to prevent human direct contact exposure and continue to qualify for Terrestrial Ecological Evaluation (TEE) exclusion. In addition, storm water conveyance systems and outfalls shall be maintained in good condition to prevent subsurface sediment intrusion to stormwater systems.

4.10 Required Permits

All actions carried out by Ecology or Ecology's contractor must be performed in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090 which allows an exemption from the procedural requirements of State and local permits. The currently known permits or other federal, state, or local requirements that the agency has determined applicable are as follows:

Federal Requirements

- Resource Conservation and Recovery Act (RCRA)
- Occupational Safety and Health Act (29 CFR 1910)
- Rules for Transport of Hazardous Waste (49 CFR 107, 49 CFR 171, 40 CFR 263)
- Safe Drinking Water Act, including Underground Injection Control (e.g., 40 CFR 144, 145, 146, and 147)



- Clean Air Act (Title 42, Chapter 85)
- National Pollutant Elimination Discharge System (NPDES) permit

State Requirements

- Model Toxics Control Act (WAC 173-340)
- Dangerous Waste Regulations (WAC 173-303)
- State Environmental Policy Act (RCW-43.21C)
- Environmental Checklist (WAC 197-11-960)
- Minimum Standards for Construction and Maintenance of Wells (WAC 173-160)
- State Clean Air Act (RCW 70.94)
- Washington Industrial Safety and Health Act Regulations (WAC 296-62)
- Water Pollution Control Act (RCW 90.48)
- Water Quality Standards for Groundwater of the State of Washington (WAC 173-200)
- Underground Injection Control (WAC 173-218)
- Maximum Environmental Noise Levels (WAC 173-60).

Local Requirements

- Local water discharge requirements, if using local stormwater drains
- Regional Clean Air Agency Notice of Construction, unless exempt

4.11 Schedule

In accordance with the project schedule, Site Activities are expected to begin after receipt of approval by Ecology to the Final EDR and 100% CPS document. The 100% CPS document is the last task included in the current Second Amendment to the AO, and JELD-WEN anticipates performing the implementation of the cleanup action under a subsequent amended AO.

The current understanding based on the design is that the construction and monitoring schedule will consist of up to 1 year for implementation of the soil removal remedy and installation of the AS/SVE system, 5 years of operation of the AS/SVE system, and 5 years of MNA.

4.12 Compliance Monitoring

The compliance monitoring plan for the Site was developed in accordance with the requirements of WAC 173-340-410. Compliance monitoring requirements associated with remedy implementation consist of protection monitoring during construction activities, performance monitoring to ensure that remedy construction is in accordance with the project plans and design, and confirmation monitoring following remedy completion to confirm compliance with cleanup standards. Requirements for compliance monitoring will be established in a Compliance Monitoring Plan that the Performing PLPs shall submit to Ecology for review and approval.



4.12.1 Protection Monitoring

The purpose of protection monitoring per WAC 173-340-410(1)(a) is to “confirm that human health and the environment are adequately protected” during cleanup activities. Upland protection monitoring will include applicable permitting and notification requirements, including development of an ESCP and obtaining a CSGP, as well as other applicable local regulations. Stormwater inspections and sampling will be performed per the terms of the permit.

Fugitive emissions and dust are considered a complete pathway during excavation activities. Dust monitoring will be conducted throughout excavation work and other site activities to be described in the SAP. Equipment operators working on the excavation are not expected to come into contact with the soils while performing normal (i.e., non-ground disturbing) site duties. Protection monitoring requirements for worker safety will be described in the HASP.

Nuisance odors are expected from the NAPL-impacted removed soil. However, the modification to the soil removal depth is expected to sufficiently mitigate potential effects from these odors. As stated in the Ecology letter¹⁷, “additional (deeper) excavation has potential to result in exposures to cleanup workers, potential odors emanating from the area to neighboring workers or passersby, and additional dump trucks carrying these materials. These additional trucks could result in additional odor nuisance, as well as a risk factor for potential accidents”.

4.12.2 Performance Monitoring

The purpose of performance monitoring per WAC 173-340-410(1)(b) is to “confirm that the interim action or cleanup action has attained cleanup standards and, if appropriate, remediation levels or other performance standards.” Performance monitoring to be conducted during cleanup activities include:

- Field logs of soil observations from surface to 4 feet bgs in accordance with NAPL Guidance for on-site clean overburden, expected impacted zone soils, and imported fill material.
- Construction Quality Assurance (CQA) monitoring for construction activities, including survey of excavation extents or caps, and geotechnical assessment of backfilling and compaction.
- Periodic monitoring of the AS/SVE system to evaluate contaminant removal rates, carbon absorption rates, carbon replacement status, and overall operation of the system. Details of the periodic monitoring will be detailed in an Operation, Monitoring, & Maintenance Plan (OMMP).

4.12.3 Confirmational Monitoring

The purpose of confirmational monitoring per WAC 173-340-410(1)(c) is to “confirm the long-term effectiveness of the interim action or cleanup action once cleanup standards and, if appropriate, remediation levels or other performance standards have been attained.” Confirmational monitoring activities to be performed include:

17



- Routine inspections of capped areas to verify that the constructed remedy remains effective.
- Periodic shallow groundwater monitoring at groundwater monitoring wells to verify that groundwater chemical cleanup standards have been met (i.e., concentrations above CULs have not reached the POC) (see Figure 8).
- Periodic deep groundwater monitoring at groundwater monitoring wells to verify that groundwater cleanup standards have been met (i.e., no mobile NAPL) (see Figure 8).

4.13 Cleanup Action Completion Report

Once excavation activities and the surface restoration are completed, a Cleanup Action Completion Report will be produced to document all cleanup implementation activities. As noted above, it is anticipated that the elements of the Cleanup Action Completion Report will be included in an Amended AO.

5.0 Closure

This document has been prepared by SLR International Corporation (SLR). The material and data in this report were prepared under the supervision and direction of the undersigned.

Sincerely,

SLR International Corporation

[DRAFT FOR ECOLOGY]

[DRAFT FOR ECOLOGY]

R. Scott Miller, P.E.
Senior Principal

Chris Kramer
Principal

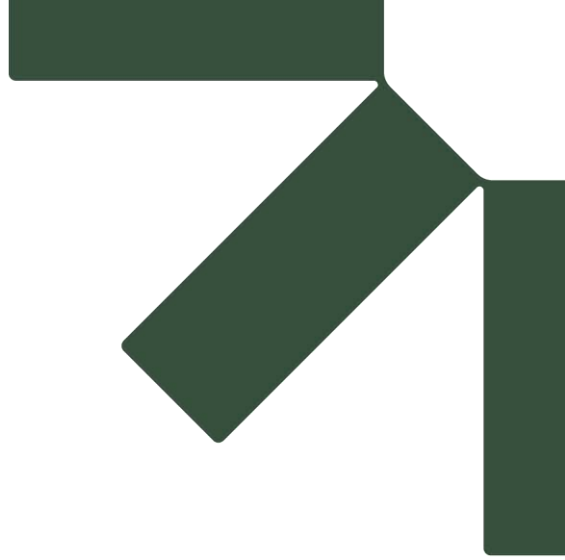


6.0 Limitations

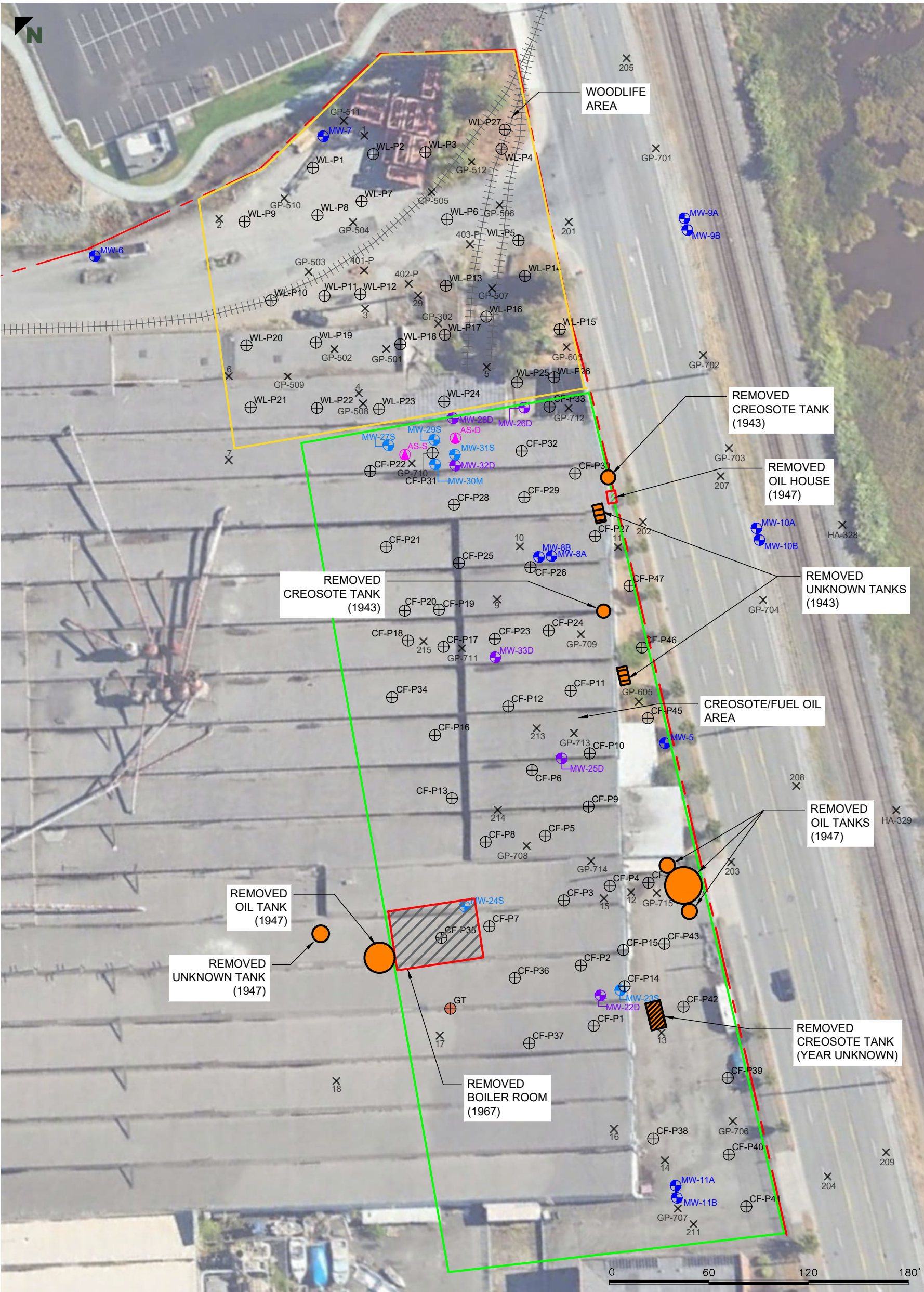
The services described in this work product were performed in accordance with generally accepted professional consulting principles and practices. No other representations or warranties, expressed or implied, are made. These services were performed consistent with our agreement with our client. This work product is intended solely for the use and information of our client unless otherwise noted. Any reliance on this work product by a third party is at such party's sole risk.

Opinions and recommendations contained in this work product are based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. The data reported and the findings, observations, and conclusions expressed are limited by the scope of work. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this work product.





Figures



LEGEND	
	APPROXIMATE SUBJECT PROPERTY BOUNDARY
	APPROXIMATE CREOSOTE/FUEL OIL INVESTIGATION AREA BOUNDARY
	APPROXIMATE WOODLIFE INVESTIGATION AREA BOUNDARY
	EXISTING GROUNDWATER MONITORING WELL
	NEW PRDI SHALLOW GROUNDWATER MONITORING WELL
	NEW PRDI DEEP GROUNDWATER MONITORING WELL
	AIR SPARGE WELL
	PRDI GEOTECH BORING LOCATION
	GEOPROBE SOIL BORING LOCATION AND DESIGNATION
	HISTORICAL SOIL BORING LOCATION AND DESIGNATION

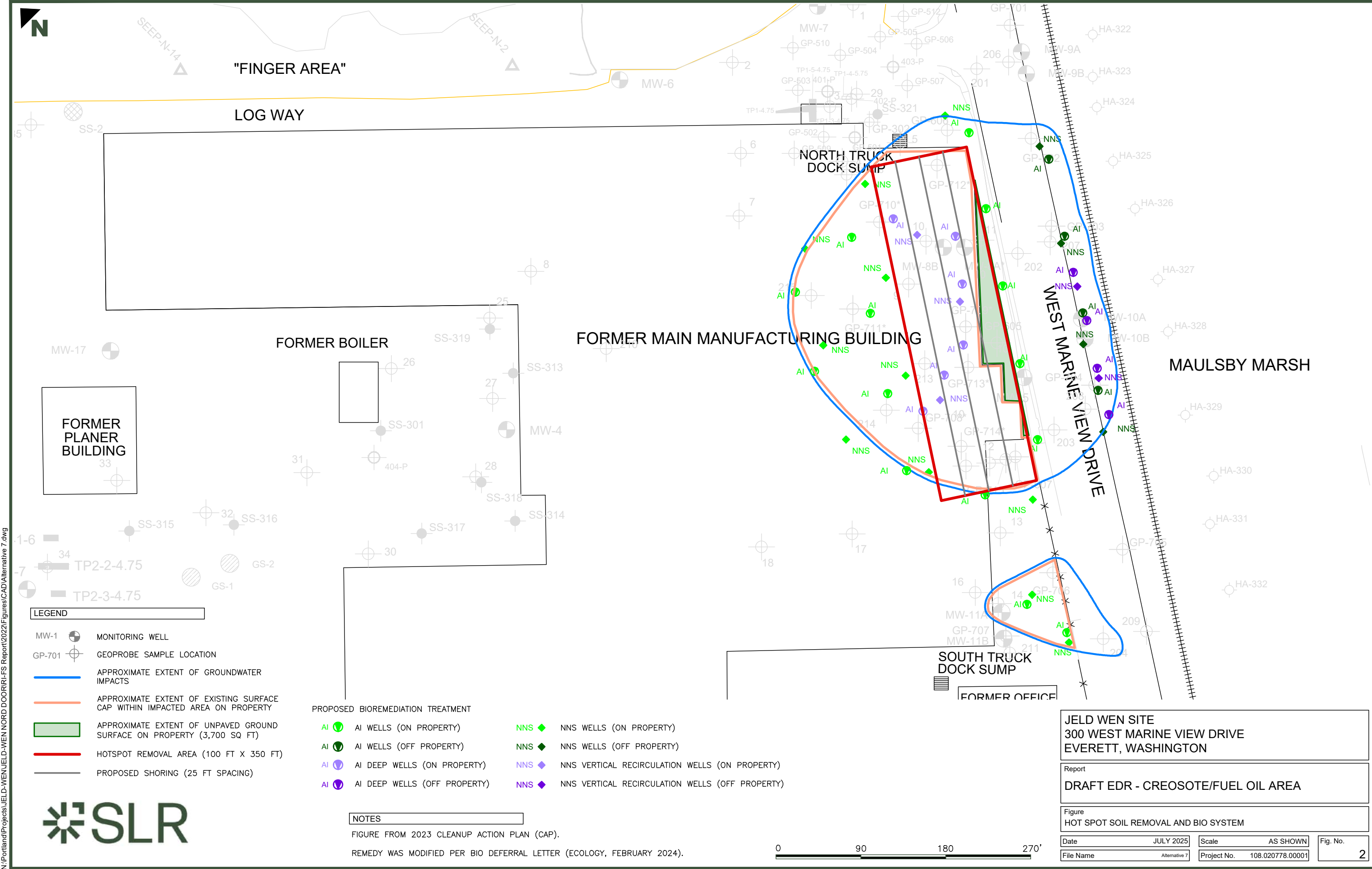
JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
DRAFT EDR - CREOSOTE/FUEL OIL AREA

Figure
SITE PLAN

Date	JULY 2025	Scale	AS SHOWN	Fig. No.
File Name	2024_Nord.dwg	Project No.	108.020778.00001	1





N:\Portland\Projects\JELD-WEN\JELD-WEN NORD DOOR\IRI-FS Report\2022\Figures\CAD\Alternative 7.dwg



-
- A horizontal number line with tick marks at 0, 60', 120', and 180'.

Fig. No. 3



LEGEND

MW

EXISTING GROUNDWATER MONITORING WELL

MW

NEW PRDI SHALLOW GROUNDWATER MONITORING WELL

MW

NEW PRDI DEEP GROUNDWATER MONITORING WELL

AS

AIR SPARGE WELL

GT

PRDI GEOTECH BORING LOCATION

CF/WL

GEOPROBE SOIL BORING LOCATION AND DESIGNATION

X

HISTORICAL SOIL BORING LOCATION AND DESIGNATION

ESTIMATED EXCAVATION FOOTPRINT TO 4 FEET

ESTIMATED EXTENT OF BUILDING DEMO

NOTES

HORIZONTAL EXTENT OF EXCAVATION WILL BE DETERMINED BY VISUAL
OBSERVATION OF NAPL AND VERTICAL EXTENT TO BE A MINIMUM OF 4 FEET BGS.

JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
DRAFT EDR - CREOSOTE/FUEL OIL AREA

Figure
EXCAVATION PLAN

DateJULY 2025

ScaleAS SHOWN

Fig. No.4

File Name2024_Nord.dwg

Project No.108.020778.00001



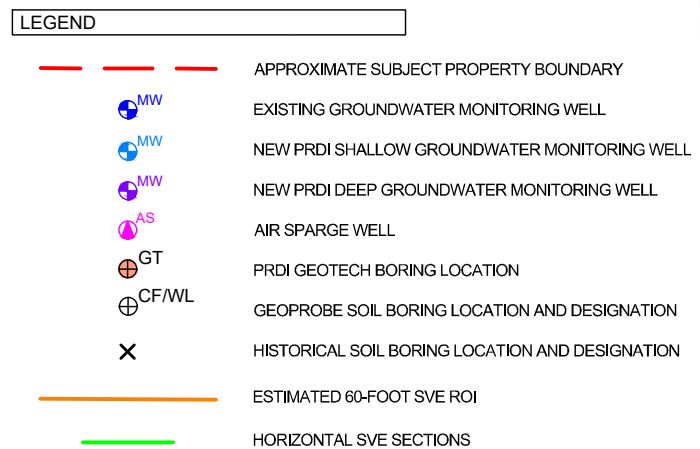
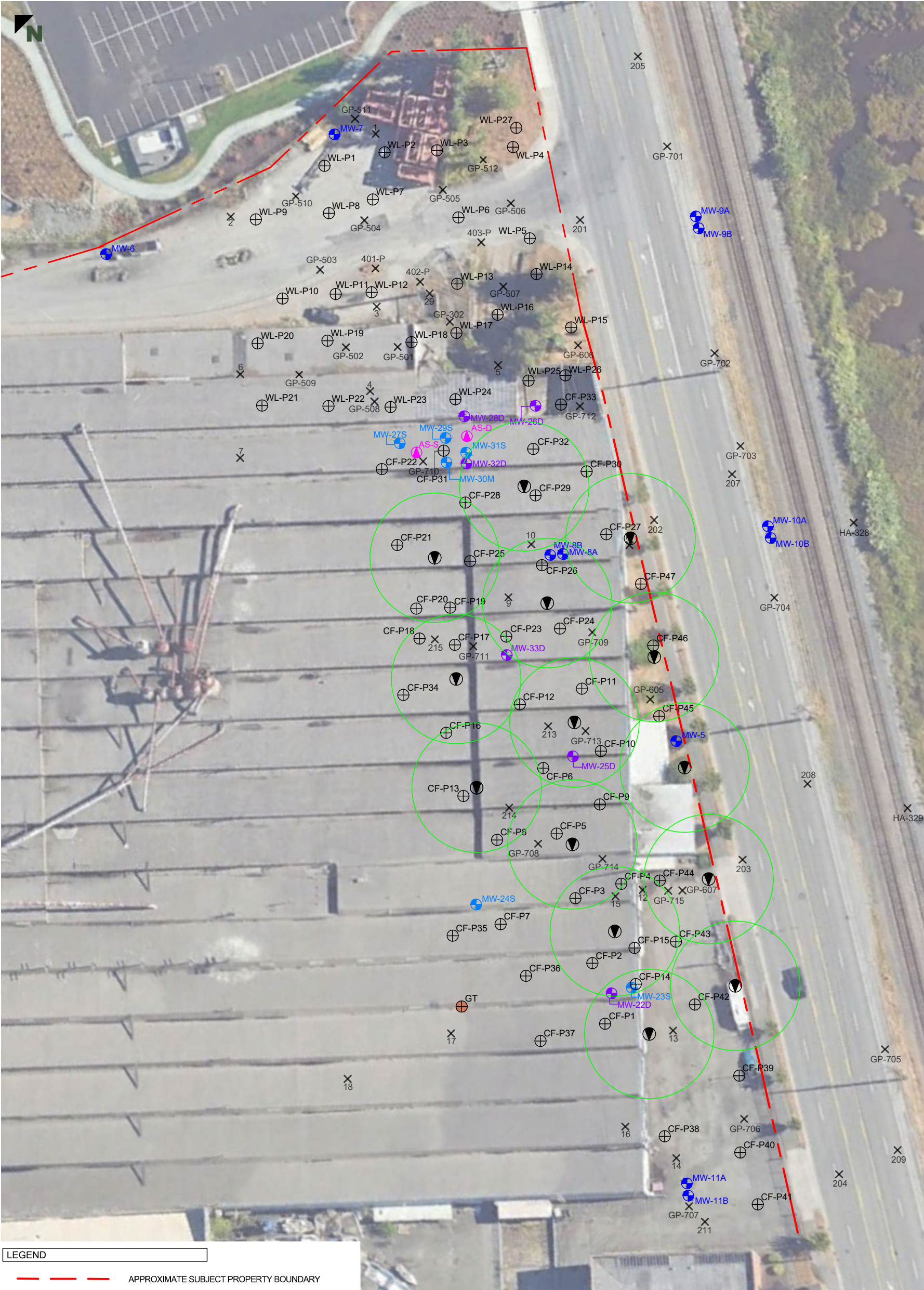


Fig. No. 5



LEGEND

- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- EXISTING GROUNDWATER MONITORING WELL
- NEW PRDI SHALLOW GROUNDWATER MONITORING WELL
- NEW PRDI DEEP GROUNDWATER MONITORING WELL
- AIR SPARGE WELL
- PRDI GEOTECH BORING LOCATION
- GEOPROBE SOIL BORING LOCATION AND DESIGNATION
- HISTORICAL SOIL BORING LOCATION AND DESIGNATION
- PROPOSED SHALLOW AS WELL
- SHALLOW AS ROI 40 FEET

0 60' 120' 180'

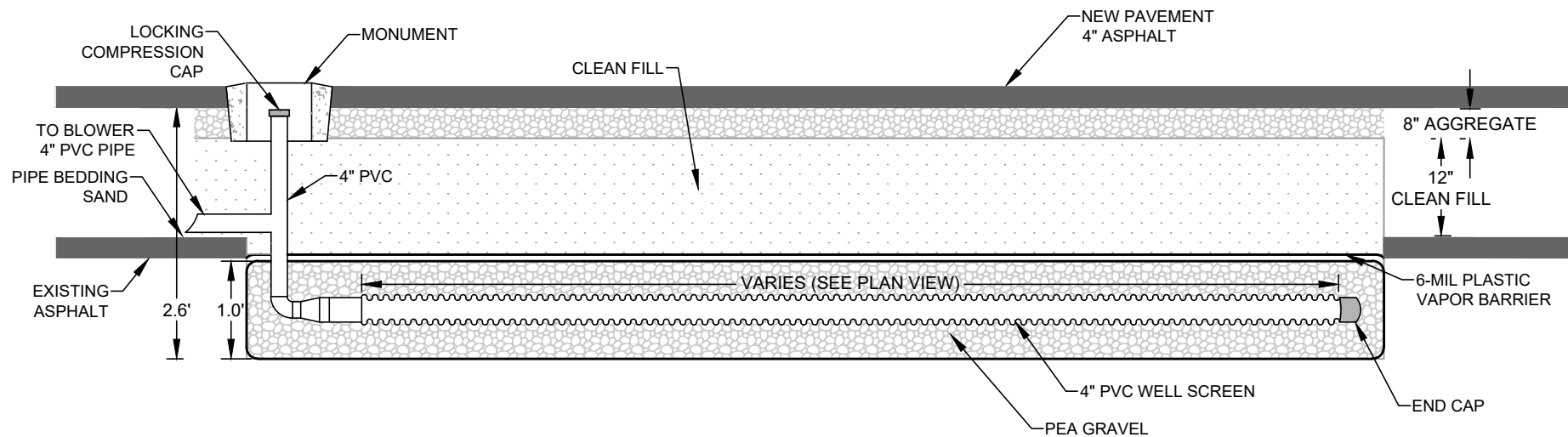


JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
DRAFT EDR - CREOSOTE/FUEL OIL AREA

Figure
AS SYSTEM PLAN

Date	APRIL 2025	Scale	AS SHOWN	Fig. No.
File Name	2024_Nord.dwg	Project No.	108.020778.00001	6



NOTES

1. HORIZONTAL SVE SECTION DESIGN SHOWN FOR INSTALLATION BELOW EXISTING PAVEMENT ELEVATION. CONTINGENT HORIZONTAL SVE SECTIONS WILL ALSO BE INSTALLED WITHIN CLEAN FILL AREA (I.E. BETWEEN THE LAYERS OF PAVEMENT) IN CASE OF BREAKTHROUGH

JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report

DRAFT EDR - CREOSOTE/FUEL OIL AREA

Figure

SVE HORIZONTAL WELL SCHEMATIC

Date July 16, 2025

Scale AS SHOWN

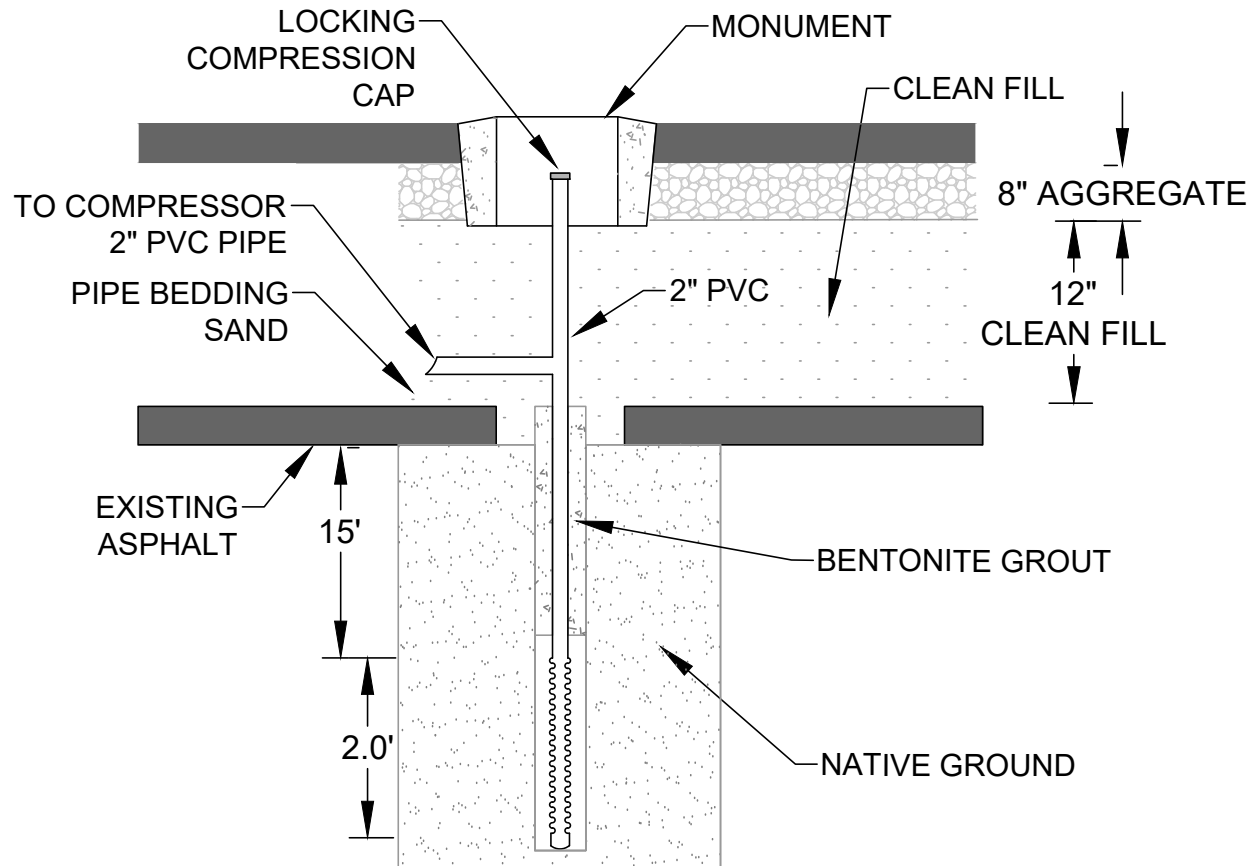
Fig. No.

File Name Horizontal SVE Section Design

Project No. 108.020778.00001

7





NOTES

JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
DRAFT EDR - CREOSOTE/FUEL OIL AREA

Figure
SHALLOW AIR SPARGE WELL SCHEMATIC

Date July 16, 2025

Scale AS SHOWN

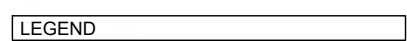
Fig. No.

File Name Horizontal SVE Section Design

Project No. 108.020778.00001

8

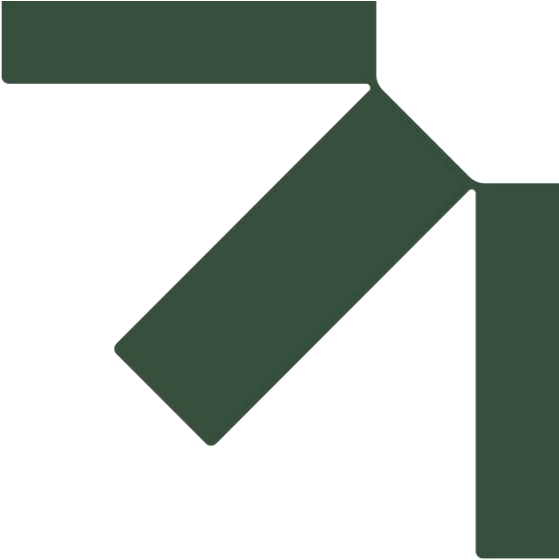




-
- 0 60' 120' 180'



Fig. No. 9

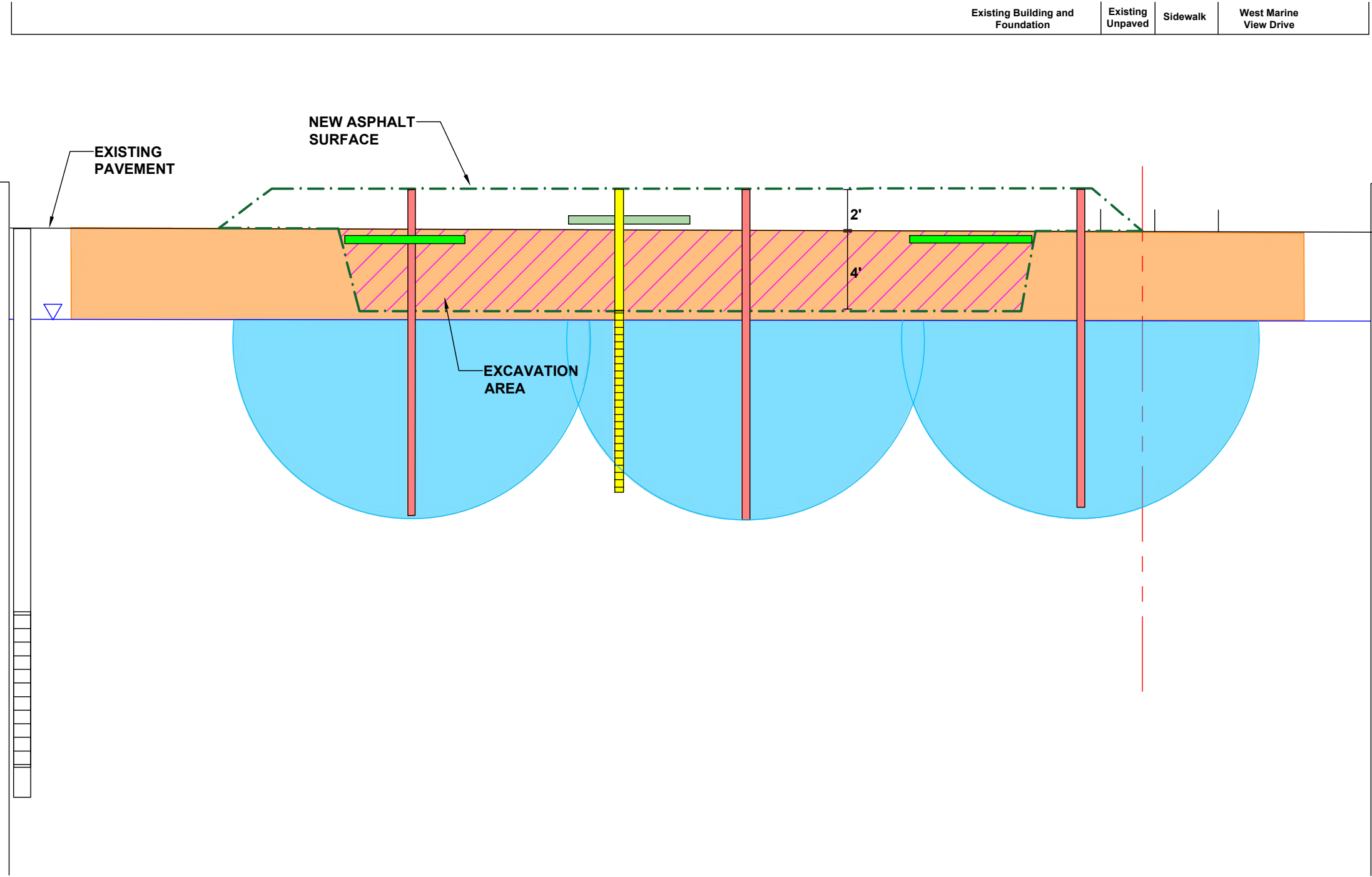


Appendix A Cross Sections

Figure path: C:\Users\le Hernandez\OneDrive - SLR Consulting Limited\Desktop\X_SECTION_CFO EDR.dwg

W

E



NOTES

NOT TO SCALE.

HORIZONTAL SVE SECTION DESIGN DETAILS ARE SHOWN ON FIGURE 7.

AIR SPARGE WELL DESIGN DETAILS ARE SHOWN ON FIGURE 8.

LEGEND

- SUBJECT PROPERTY BOUNDARY
- IMPORTED FILL MATERIAL
- EXCAVATION AREA
- ESTIMATED SVE TREATMENT AREA
- HORIZONTAL SVE SECTION
- CONTINGENCY HORIZONTAL SVE SECTION
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL WITH SUMP
- SPARGE WELL
- ESTIMATED SPARGE TREATMENT AREA
- ▽ GENERAL WATER TABLE ELEVATION

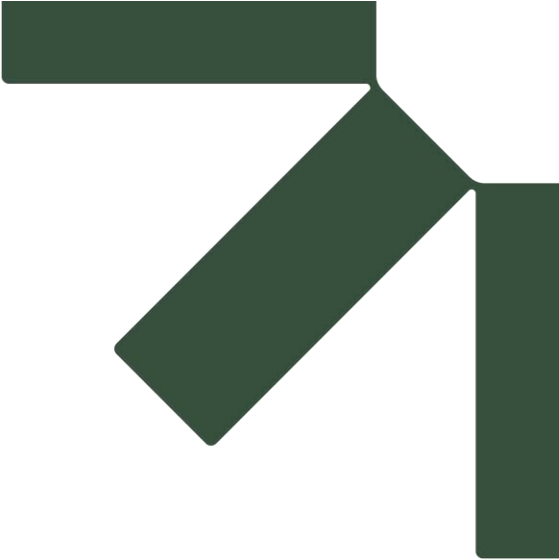
JELD WEN SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
DRAFT EDR - CREOSOTE/FUEL OIL AREA

Figure
APPENDIX A - WEST-EAST CROSS SECTION

Date	July 17, 2025	Project No.	108.020778.00001	Figure No.
Drawn		Checked		A-1





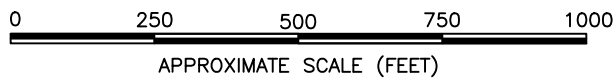
Appendix B Property Ownership Information

Last Saved: July 18, 2025 9:42:35 AM by cblackburn Drawing path: \\us.slr.local\us-dfs\Portland\Figures\JELD-WEN\JELD-WEN NordDoor\PHASE 2\EDR\EDR AppendixA.dwg



DATA REFERENCED FROM : SNOHOMISH COUNTY ASSESSOR
AERIAL IMAGERY REFERENCE: ESRI (2024)

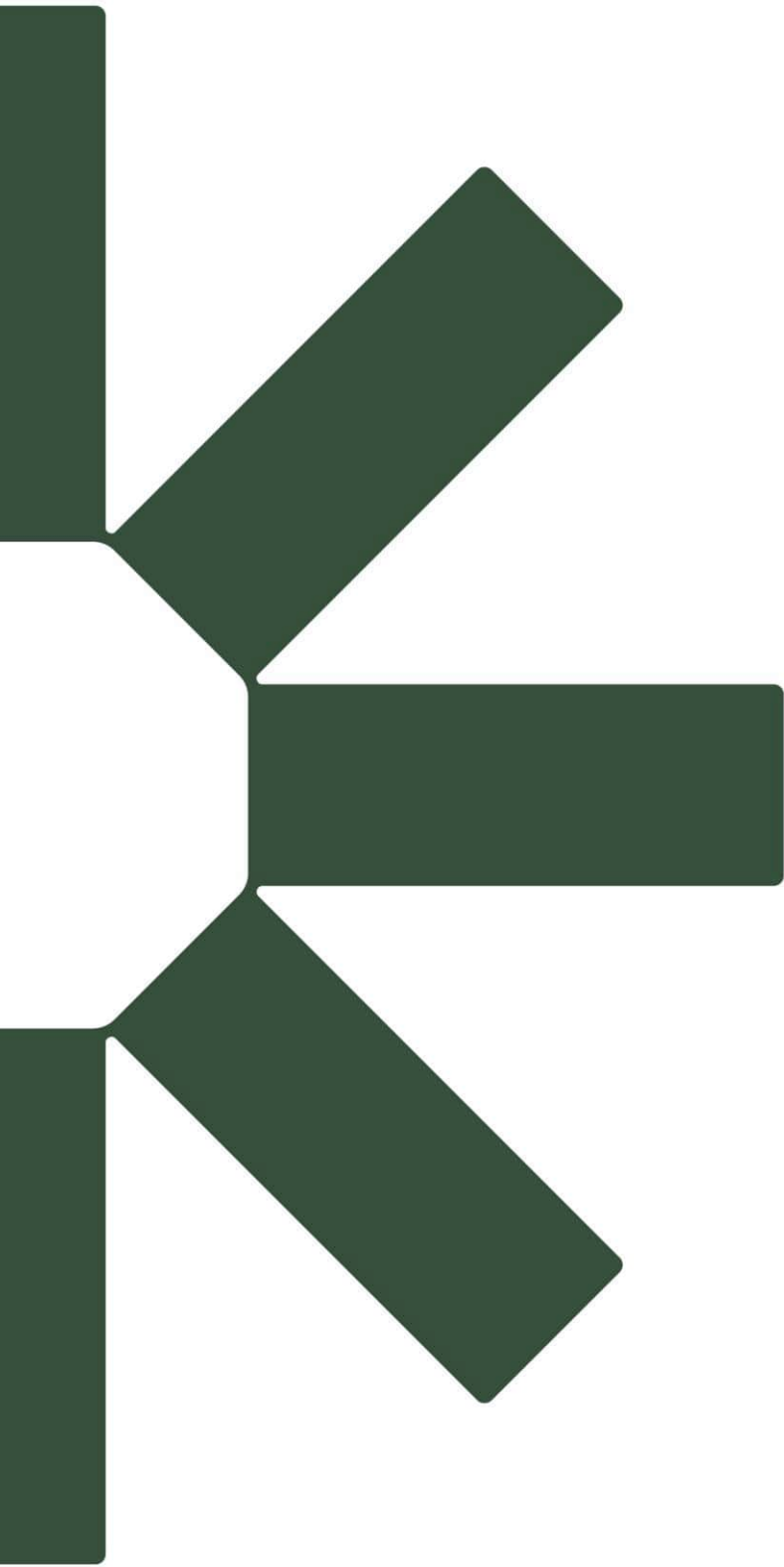
- Estimated extent of Engineering Controls (Soil Cap)
- Estimated extent of Institutional Controls (Deed Restrictions, Soil Management Plan)



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL
LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.



Site	300 WEST MARINE VIEW DR EVERETT, WA 98201		
Report	DRAFT EDR - CREOSOTE/FUEL OIL AREA		
Drawing	UPLAND PROPERTY OWNERSHIP		
Date	July 17, 2025	Scale	AS SHOWN
File Name	EDR AppendixA	Project No.	108.020778.00001
Fig. No.	B-1		



Making Sustainability Happen